Water Supply

Today's May 1 snow survey measurement at Phillips along Highway 50 was just 11% of normal for this time of year. May is the final measurement of the season, ending what has been a dry year, and very dry spring. Phillips is in a sunny open spot, so it came in lower than most other medium to high elevation locations. Nonetheless, there are many factors negatively impacting statewide water supply. The sum total meteorological and hydrologic conditions of the past 2 years paint a dry picture. A set of factors, tidbits, and data is included in today's newsletter that relate to the low runoff projections DWR is making for this year.

Current Conditions May 1 '08, and comparisons to 1976-77

* Incoming readings of snow water equivalents range from 60-80% normal for May 1.
* Statewide snowpack sensors estimate 67% of average for May 1, 2008. The breakdown for regions is 88% Northern, 61% Central, and 60% Southern. These estimates are made using remote sensors.
* The final snow survey course measurements of the season are being conducted this week. (Media survey for Phillips held Thursday, May 1). Course measurements are more accurate than the sensors' estimates above.
* 2008 has seen the driest March/April across the Northern Sierra (8 Station*), with just 2.3" over 2 months. March and April were each the 6th driest of their respective months on record. *See below.
* We have lower total precipitation for the 8 Station* than last year at this time. April 30, 2008 stands at 33.7" (75% to date, 67% of normal water year). This is currently the 22nd driest out of 88 years of record. As of April 30, 2007 we had 34.4". 2007 ended with 37.3".
* April 1 snowpack comparisons are normally recorded as the "peak" of a year's snowpack. April 1, 2008 had a roughly 100% of normal reading. This compares to a 40% of average snowpack on April 1, 2007, and 25% in 1977. This year's peak snowpack occurred in mid-March.

The runoff from snowmelt this year will be less than what you would expect from the 'normal' (100%) April 1 snowpack.

* While this was a normal snow year, it was not a normal rainfall year. We are about at 75% of average, statewide for rainfall, and 75% of average for the 8 Station*. The low rainfall amounts are a factor in total runoff.
* It was dry last year ('06-'07), then we had a dry start (October through December period was below normal). These antecedent conditions also reduce projections.
* Soil moisture is so low, that even less may be available for runoff than other years with similar snowpack. Much may be absorbed into the dry ground. Soil moisture absorption is a difficult thing to model.
* The cold storms that we did receive did not produce rainfall-driven runoff mid-winter. They came mostly as snow due to La Nina track which 'skips' the valleys and produces snow. January and February snow storms were productive, but are not sufficient. Without that lower

elevation rain, and a lack of warmer, tropical type systems, this La Nina winter meant lower total runoff.

* March is normally a month of snowpack gain of 10%, but this March was cold, dry. We retained enough to keep April 1 snowpack at 100%, but we had lower thru-March runoff due to cold temperatures. Sublimation of some snow is also likely to have occurred to some degree, taking snow from solid straight to vapor under sunny skies. These factors also contribute to lower total runoff projections for the year.
* As of April 22, the April-July runoff forecast for the state ranges from 83% Kings River to 61% Tule River. That compares to the observed '76-'77 A-J runoff of about 25%.
* DWR's April 1 hydrologic classification indices for this year are DRY on Sacramento, and CRITICAL on the San Joaquin river system.** Last year ended DRY on Sacramento and CRITICAL on San Joaquin.'75-'76 and '76-'77 were each classified as CRITICAL for both river systems.***

Drought?

* Factors in a large scale drought determination include precipitation, deficiencies in water supply, below-normal streamflow, depleted soil moisture, low groundwater, lake and reservoir levels. These ingredients have not yet combined to create an all out drought designation. Some runoff related comparisons:
* The 2-year streamflow period 2006-2008 (by estimating Oct. 1 projections for this year) for both the Sacramento and San Joaquin systems will be close to the lowest 10% of 2-year periods of record. (SJQ just below, SAC just above). 1-year, and 3-year runoff totals have not been record setting. However, if next year were very dry, severe drought would be possible.
* Statewide Reservoir storage is projected to fall to approximately 65% of average by the end of September (it is currently close to 80% of normal for this date). Oroville currently stands at 48% of capacity, 58% of average for this time of year. It's holding 1.7 million acre feet (MAF) of water. A quick ballpark comparison shows the most recent minimum at Oroville in December of 1990, when it was storing less than a million acre feet (about 987,000).
* This years' peak for snowpack occurred in mid-March. We've lost about 7-8MAF of water equivalence (HALF) since that time. Not all has shown up as runoff yet; hopefully it is only delayed, not lost. If it's in transit, it is in subsurface layers, and has not shown up yet. It could be lost to dry ground absorption, or, to a smaller degree to sublimation (going directly from solid to vapor).

GOOD NEWS?

* In comparison to the most recent drought period (late '80's, early '90's), the hydrologic conditions of this 2 year period (2006-2008) are projected to end 15-20% wetter, on average. The Sacramento River had readings in the 9 MAF range for that time period, 1987-1992. Last year (2007) ended at 10.25MAF, this year is estimated to end at 11.3MAF (2 yr average about 20% higher). The San Joaquin had an average near 2.75MAF in the late 80's, early 90's. Last year was 2.5MAF, but this year was 3.8MAF (2 year average about 15% higher).

*8 Station Index

* 8 locations for which DWR tracks total precip (rainfall and snow). These stations represent the "top" of the State Water Project. The 8 Station Northern Sierra Index stations are: Mt. Shasta City, Shasta Dam, Mineral, Brush Creek, Quincy, Sierraville, Pacific House, and Blue Canyon. (Other California towns' and cities' weather data is maintained and available through the National Weather Service - DWR records, charts, and archives the 8 Station Precipitation Index, referred to as the "8 Station.")

**Next Runoff Forecast

Following the snow surveys results of the next week, the most updated (May 1) runoff estimates and hydrologic classification indices for this year will be made available the week of May 5. Official water year types are based on May 1 forecasts.***

***Hydrologic classification year types: Wet, Above Normal, Below Normal, Dry, and Critical.

Other regions

Sacramento, Stockton, Modesto and Redding have all had their driest March/April (2month) on record.

Los Angeles (and much of Southern California) has had significantly higher rainfall totals than last year. LA now has over 10" of rain for the season, with 2007 ending with only about 2" (25% or so - driest ever). Not a typical La Nina year.

Here is the official DWR press release, which includes the impacts of pumping restrictions on state water supply:

http://www.water.ca.gov/news/

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